COOPERATIVE EXTENSION WORK
IN
AGRICULTURE AND HOME ECONOMICS

STATE OF UTAH
LOGAN

UTAH STATE AGRICULTURAL COLLEGE AND
U. S. DEPARTMENT OF AGRICULTURE
COOPERATING

EXTENSION SERVICE

July 15, 1948

Mr. Ray Thatcher
County Agent
Ranguitch, Utah

Dear Mr. Thatcher:

The following is a report of my trip to Boulder, July 6-10 together with recommendations as to changes and improvements in the handling of their irrigation water.

I arrived at Boulder at noon on July 6 and immediately started to study the very complicated system of water rights and exchange of water between different rights. I talked to practically every one there individually and in groups and after reading the McCarty decree and Garrison decree and subsequent applications for water and then talking to a representative of the State Engineer.

I have some recommendations to make which are not what I had intended to make but are based upon facts gotten from the State Engineer's office.

The situation is about as follows: Judge McCarty decreed 7/16 of Boulder Creek to certain users and 9/16 to other users but in a paragraph following says "and that in normal seasons there are 24 second feet of water in Boulder Creek". I found 36.36 c.f.s. in Boulder Creek on July 7. The primary users of Boulder Creek since 1901 have used not only the 24 c.f.s. but all waters flowing and generally up to July 1. This flow has been two or three times the amount specified by Judge McCarty.

In 1931 and again in 1945 the Boulder Irrigation and Development Co. filed on storage and high water for storage in Spectacle Lake Reservoir. Also sometime about 1945 this same company filed for 70 c.f.s. of high water. In 1947 these two applications (ie) storage of 1347.89 ac. ft. for Spectacle Lake Reservoir and 70 c.f.s. high water were re-filed for in the name of the State Water and Power Board. These two applications are numbered 19138 and 19139 and are in good standing in the State Engineers office.

The way the situation now stands is, the primary water was set by Judge McCarty at 24 c.f.s. in Boulder Creek, subsequent developments have further fixed this figure. The State Water and Power Board have loaned State money for completion of Spectacle Lake Reservoir and could not possibly, without due process of law, allow this figure to be changed.

My recommendations found later in this letter are based upon the above facts and even though I may have favored some other course I could not do otherwise than face these facts.

WATER MEASUREMENTS

Nineteen measurements of water were made over a period of 5 days. These measurements were mainly made with a current meter but several were made with standard measuring devices in good condition. Wherever there was a question about the reliability of the measuring device a currentmeter measurement was taken. The location of the measurements are shown on the attached sketch map which is made a part of this report but the recapitulation is repeated in the following table.

MEASUREMENT RECAPITULATION

Number	Date	Amount	Name	How Made
1	1/6/48	15.58 c.f.s.	Saw Mill	Current Meter
2	7/6/48	8.53 cfs	E. Boulder	Current Meter
3	7/7/48	2.86 cfs	Otto Hams	Current Meter
4	7/7/48	3.62 cfs	Leland Hams	Current Meter
5	7/7/48	14.30 cfs	Lower Canal	Parshall Flume 3' wide
6	7/7/48	2.65 cfs	Lyman Deer Creek	Current meter
7	7/7/48	1.75 cfs	Lyman Deer Creek Ditch	Parshall Flume 9" wide
8	7/8/46	7.29 cfs	Peterson-Baker-Meeseman	Current meter
9	7/8/48	1.31 cfs	Emeron Peterson & Old cfs loss	Current meter
10	7/7/48	1.54 cfs	Lester Baker	18" L. Rec. Weir
11	7/8/48	1.43 cfs	Burnell Baker	Current Meter
12	7/8/48	2.17 cfs	Lester Meeseman	Current meter
13	7/8/48	1.45 cfs	Lester Baker	18" Rectangular Weir
14	7/7/48	8.28 cfs	King Ditch @ Cattle Guard	Current meter
15	7/7/48	1.50 cfs	E. Coombs	9" Wide Parshall Flume
16	7/10/48	0.168fs	Town Ditch at School	"V" Notch Weir
17	7/10/48	3.17 cfs	?	2" Wide Parshall Flume
18	7/10/48	0.40 cfs	Forest Service	Current meter
19	7/10/48	3.04 cfs	John King	Current meter

It shows a total of 36.36 c.f.s. flowing in Boulder Creek and a total of 4.40 c.f.s. in Deer Creek.

CONTROL AND MEASURING DEVICES

Since the McCarty decree specified a definite portion of the stream to each user, the prevailing device for separating the water is a proportional divider. Most of those found were in poor condition and in no single instance was there one which was doing a satisfactory job. In general, proportional dividers have not proven satisfactory because the channel immediately above the divider becomes filled with silt and the velocity of approach becomes uneven and one side or the other gets the advantage. It is much more satisfactory to measure the two streams or knowing the entire amount measure one stream and then divide according to the rights.

Due to the anticipated use of storage water and distribution of high water according to shares of stock owned in the Spectical Lake Reservoir I strongly recommend the installation of measuring devices according to the table given below:

Number Refer to sketch map	Name or Location	Kind of device
	At head of East upper Boulder	3' Parshall Flume in upper canal 18" Dia. Calco meter Gate in main boulder Creek. This installation will require the installation of a flume with a flood control gate above the entrace into Parshall Flume & Calco Meter gate. The flume should have spillway sides such that high water may spill into main channel and upper canal. In normal times all the water would be measured in correct amounts through the Parshall Flume and Calco Meter gate but in case of a flood or during high water the flood gate being closed to a predetermined amount the extra water would spill over each side of the flume and could be divided proportionally between the canal and main stream.
1	George Armond	14" Calco Meter gate, 2' Rectangular Weir Removable crest bulkhead.
1	Saw Mill	2' Parshall Flume 24" Diameter Calco Meter gate With flood control as described at Head of East Upper Boulder Creek

Number Refer to Sketch Map	Name or Location	Kind of device
6	Lyman-Deer Creek Head	12" Calco meter gate or 18" Rectangular Weir removal crest bulkhead
	Bert Peters Estate Culinary streag, and for all culinary streams.	"V"-90 ° notch weir similar to attached plan. Removable crest bulkhead and concrete retaining walls
15	Eph. Coombs	9" Parshall Flume plus flood control on main ditch as described at Head of East Upper Boulder Creek (Flume already installed)
3	Otto Haws	9" Parshall Flume 18" deep or 18" Rectangular weir removal bulkhead
4	Leland Haws	9" Parshall flume 18" deep or 18" Rectangular weir removable bulkhead
17	Drain ditch	24" Parshall flume (This installation is already made)
	Petdrson-Hansen ditch	9" Parshall flume on Hansen side or 18" rectangular weir removable crest bulkhead
	Ermine Peterson	12" Diameter Calco Meter Gate or 18" Rectangular Weir removable bulkhead as shown in attached plans.
	Heber Paulsen	"V" notched weir according to attached plan.
19	John King	12" Parshall flume 18" deep, or 2' rectangular weir removal crest bulkhead
	Vern Hansen	12" Parshall flume 18" deep or 2' rectangular weir removable bulkhead
	Hansen 2nd diversion	12" Parshall flume 18" deep or 2' rectangular weir removable bulkhead
9	Will Peters Estate	12" Parshall flume 18" deep or 2' rectangular weir removable bulkhead.
11	Burnell Baker	12" Parshall flume 18" deep or 2' rectangular weir removable bulkhead
10	Lester Baker	2' Rectangular weir removable crest bulkhead
12	Lester Mooseman	2' Rectangular weir removable crest bulkhead

In most instances alternative measuring devices have been recommended. Plans are attached hereto for a Bulkhead Weir with removable crest. Where there is sufficient fall this is a much less expensive device than either Calco Meter Gate or Parshall Flume and where the crest is removed after measuring or at intervals to allow for desilting it does a very satisfactory job of measuring.

All Parshall flumes now installed are without stilling wells. These wells should be installed in all flumes as a correct head is very difficult if not impossible to read without a well.

METHOD OF DELIVERY

Many very wasteful practices of water use were found in Boulder but probably the most wasteful is the use of too small streams. It is recommended that in every case where possible several individuals combine their streams and divide the time. It is recognized that in a very few instances due to location, etc. this method will not be feasable or practical but in most places several irrigators could combine and save much time and water.

GENERAL RECOMMENDATIONS

Up to the present time there has been no way to store water and since the high water was divided according to primary rights every user received nearly all the water he needed up to approximately July 1 and from that date the primary users took all the water. Another prevalent practice in the past has been for the individual user to adjust his own stream. While not in agreement with the dully appointed commissioner this very objectional method of handling is being followed at the present time.

The water laws of the state of Utah gives the State Engineer jurisdiction over the measurement, appropriation, apportionment and distribution of all water in the State. (See Title 100, chapter 2, section 1, Utah Code Annalated) The State Engineer has power to appoint a water commissioner over any stream or streams (100-5-1) who in turn has police powers (100-2-9).

Because the high water will be distributed according to the amount of water owned in the Spectacle Lake Reservoir it is recommended that stock be purchased in the reservoir to the maximum amount allowed by the company which according to data secured from the Boulder Irrigation and Development Company is as follows:

Alvey, Arthur	$ 400.00
Baker, C. V. est	3,200.00
Baker, Burnell	1,600.00
Coombs, E. H.	4,600.00
Coombs, Kay	1,600.00
King, Clyde	800.00
King, John	3,200.00

King, Reed, est.	$ 4,800.00
Hall, Horace	200.00
Hansen, Mrs. A. C.	400.00
Hansen, Franklin C.	1,800.00
Hansen, Jean D.	600.00
Hansen, Omer	400.00
Hansen, George	800.00
Hansen, Vern	1,600.00
Hawe, Henry J.	1,600.00
Hawe, Leland	1,000.00
Lyman, Hazel	3,200.00
Behunin, Max	3,040.00
Moesman, Doyle	100.00
Moesman, Harvey	400.00
Moesman, Lorin	2,400.00
Moesman, Criss	200.00
Ormond, Gertrude	1,000.00
Ormond, Glen K.	800.00
Peterson, Rosa	1,600.00
Peterson, Wm. (Estate)	1,600.00
Thatcher, R. A.	800.00
Thompson, J. R.	800.00

It is further recommended that in order to make a more compact and unified company all primary users turn over all rights, in the form of a quit claim deed, to the company in leiu thereof each person turning over such water right should receive a stock certificate. Of course, as soon as the Reservoir is completed their certificates should be issued on this stock. It is suggested that the company have a form printed (after consulting an attorney) for a quit claim deed so that all will be uniform and that as soon as these are signed over to the company they be recorded in the county records.

There are several advantages in having stock certificates instead of the present decreed water: First, the water is now apurtanent to the land to which it was decreed and may not be moved without an application to the State Engineer, requesting a change in point of use. If a protest is made it may be impossible without court action to change the use to another point. If the stock is owned by a company it becomes the responsibility of the directors to grant transfers and settle other operational problems. Second, these stock certificates are more negociable. Third, the company can levy assessments to enlarge ditches, install structures, clean ditches and in general do a better job of distribution and management than individual users.

A water commissioner for Boulder area should be appointed by the State Engineer, according to the State Water Law (100-5-1). This is done after consultation with the users. In actual practice this means a recommendation comes from the users of a competent man and the State Engineer makes the appointment.

Mr. Ivan Lyman, present water master, is considered competent to make measurements on standard devices and in fact competent to install most of them and therefore, if he is agreeable to most of the users it is recommended his name be submitted to the State Engineer for appointment as Water Commissioner for this drainage area.

I am sure everyone in Boulder is desirous of getting a good operating procedure for their water. They were most cooperative with me and I assure you it is my desire to do everything for the good of this community.

Thanks for your trip over to Boulder while I was there. I will be glad to help further on this problem if I can.

Very truly yours

James R Barker

JAMES R. BARKER
Extension Irrigationist

JRB:er